AF ZLW

Attorney Docket No.: KMC-570

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	:	
	:	
Richard R. Sanchez, et al.	:	Group Art Unit: 3711
	:	
Serial No. 10/706,481	:	Examiner: Alvin A. Hunter
	:	
Filed: November 10, 2003	:	

Title: GOLF CLUB WITH SWING BALANCE WEIGHT COVER

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

I hereby certify that the following attached item(s):

(1) Transmittal Letter;
(2) Brief in Support of Appeal;
(3) Check in the amount of $500.00 for Filing Fee and Extension Fee; and
(4) Postcard, postage prepaid, self-addressed, to confirm receipt

I hereby certify that this document (and any as referred to as being attached or enclosed) is being deposited with sufficient postage as first class mail with the United States Postal Service on January 16, 2004 and addressed to Mail Stop Appeal Brief-Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 .

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Serial No.: 10/706,481
Title: GOLF CLUB WITH SWING BALANCE WEIGHT COVER

Please charge any deficiency in the enclosed fee or credit overpayment, to Deposit Account No. 50-2173. A duplicate copy of this letter is enclosed.

Dated: 15 Feb 2006

John D. Titus, Reg. No. 39,047
THE CAVANAGH LAW FIRM
1850 N. Central Avenue, Suite 2400
Phoenix, AZ 85004
Telephone: (602) 322-4000

CAVPHXDB:1225613.1

Attorney Docket No.: KMC-570

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	:	
Richard R. Sanchez, et al.	:	Group Art Unit: 3711
Serial No. 10/706,481	:	Examiner: Alvin A. Hunter
Filed: November 10, 2003	:	

Title: GOLF CLUB WITH SWING BALANCE WEIGHT COVER

BRIEF IN SUPPORT OF APPEAL

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

1. REAL PARTY IN INTEREST:

The real party in interest is Karsten Manufacturing Corporation, an Arizona Corporation having a business address at 2201 W. Desert Cove, Phoenix Arizona 85029, which is the assignee of record.

2. RELATED APPEALS AND INTERFERENCES:

Appellant is aware of no other appeals or interferences that will directly affect, be directly affected by, or have a bearing on the Board's decision in the present appeal.

3. STATUS OF CLAIMS:

Claims 1-16 are pending in the application of which claims 1 and 11 are independent. Claims 1-16 stand rejected. On December 16, 2005, appellants appealed the final rejection of claims 1-16.

4. STATUS OF AMENDMENTS:

In response to a non-final action dated December 16, 2004, appellant filed an amendment adding additional limitations to claims 1, 4-6 and 11, canceling claims 17-20 and adding a new claim 21. The examiner entered the amendment amending claims 1, 4-6, and 11, entered the amendment canceling claims 17-20 but refused to enter claim 21 on the grounds that the claim was "constructively" drawn to a non-elected invention. The examiner then issued a final rejection of claims 1-16 based on the same grounds as the non-final action.

5. SUMMARY OF CLAIMED SUBJECT MATTER:

Appellant's invention comprises a method of swing-weighting a golf club without the need to maintain a separate inventory of swing-weights for each model of club. Golf clubs are typically swing-weighted to a customer's specifications by the use of swing-weights (typically weighing from 2.5-21.5 grams in one-gram increments), which are attached within a pocket formed on the exterior surface of the club. Since an indication of a golf club's model designation is often carried on the swing weight, ordinarily a golf club manufacturer must maintain a separate inventory of approximately nineteen different swing-weights for each model of club, even though the swing weights themselves are the same size and shape irrespective of the club on which they are used.

Appellants' invention eliminates the need to maintain a separate inventory of swing-weights marked with the club's model designation. This is accomplished by providing an inventory of unmarked swing-weights of different masses together with an inventory of swing weight covers marked with the model designation of the club.

Claim 1 and the claims that depend therefrom are directed to a method of assembling a club including the steps of:

(a) forming a club head body having a weight cavity [page 2, lines 10-17 and FIG. 2];
(b) providing a plurality of balance weights [page 2, lines 18-20];
(c) selecting one of the balance weights [page 2, lines 20-page 5, line 2];
(d) attaching the balance weight rigidly to the club head body within the weight cavity [page 5, line 10-page 6, line 23 and FIG. 2]];
(e) providing a plurality of covers [page 5, line 10-page 6, line 23];
(f) selecting one of the covers [page 5, line 10-page 6, line 23]; and
(g) attaching the cover to the club head body so that it substantially covers the balance weight. [page 5, line 10-page 6, line 23]

Claim 11 and the claims that depend therefrom are directed to a resulting golf club, which comprises:

(a) a club head body having a weight cavity [page 2, lines 10-17 and FIG. 2];
(b) a balance weight disposed within the weight cavity and attached rigidly to the club head body, wherein the balance weight is selected from a plurality of balance weights having different masses [page 5, line 10-page 6, line 23 and FIGS. 2, 4-9]; and
(c) a cover selected from a plurality of covers and attached to the club head body so that the selected cover substantially covers the balance weight [page 5, line 10-page 6, line 23 and FIGS. 2, 4-9].

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

Whether the claims are obvious considering United States Patent No. 6,811,496 to Wahl et al. alone or in combination with any of the references cited by the examiner (i.e. USPN 6,162,133 to Peterson, USPN 6,015,354 to Ahu et al. or USPN 6,409,612 to Evans et al.)

7. ARGUMENT:

7.1 Rejection of claims 1-5, 11, 12, and 15 under 35 U.S.C. § 103(a) in view of USPN 6,811,496 to Wahl, et al.:

The Examiner's rationale for rejecting claims 1-5, 11, 12, and 15 as unpatentable under 35 U.S.C. § 103(a) in view of USPN 6,811,496 to Wahl, et al. was stated as follows in the non-final rejection:

> Wahl implicitly discloses a method of manufacturing a golf club head, comprising forming a club head body comprising a hollow body having a face adapted for impacting a golf ball, wherein the club head body further comprising [sic] a body surface having a weight cavity formed therein. The weight cavity being [sic] defined by a side wall and a bottom wall; providing a plurality of balance weights, wherein each of the plurality of balance weights having [sic] an upper surface, a lower surface and a lateral side joining the upper surface and the lower surface; selecting one of the plurality of balance weights, attaching one of the plurality of balance weights to the club head body within [sic] weight cavity; the [sic] selecting a cover wherein the cover comprising [sic] an outer surface, an inner surface and a perimeter wall;; [sic] and attaching the cover to the club head body so that the cover substantially covers one of the plurality of balance weights (See Figures 5A and 5B). Applicant does not disclose why it is critical to having [sic] a plurality of covers for one club head. Applicant notes that each cover identifies the type of club used. One having ordinary skill in the art would have found the cover of Wahl et al. to perform equally as well since the primary objective of the cover is to conceal the weights and therefore, [sic] would have been obvious to use any type of cover because of such.

In response to the non-final rejection, applicants amended the claims to add the limitation that the weights were rigidly attached to the club head body. The Examiner's rationale for his final rejection of the claims was a verbatim reiteration of the first rejection together with the following statement.

> Applicant's arguments filed March 21, 2005 have been fully considered but they are not persuasive. Applicant argues that Wahl et al. requires the weights within the club head to move wherein the applicant cites Column 2, lines 54 through 62 as evidence. The Examiner disagrees. Column 2, lines 54 through 62 simple [sic] implies that the core is separated from the body by the intermediate layer. Furthermore, the figures cited in the instant and previous office action show that the weights are incapable of moving.

Applicants urge that the Examiner has grievously misread the primary reference on which he relies, namely USPN 6,811,496 to Wahl, et al. Wahl et al. discloses a golf club with a vibration damping insert. The vibration damping insert comprises a weight called the "core" and an intermediate later that separates the core from the club head. According to the patent, the vibration damping mechanism is a combination of compression of the intermediate layer by the weighed core and friction between the core and the intermediate layer. To quote from the patent:

> An insert is located within the recess [in the club head] and includes a core and an intermediate layer that at least partially separates the core from the recess wall. The intermediate layer has a hardness and a modulus of elasticity that are less than that of the core, such that when the golf club head is used to strike a golf ball, the resulting vibrations are dissipated by compression of the intermediate layer and friction between the core and the intermediate layer.

Wahl, et al. Column 2, lines 54-62 (emphasis added).

Applicant submits that according to principals of elementary dynamics, for vibration to be dissipated by compression of an intermediate layer or by friction between a weight and the intermediate layer, there must be motion between the weight and the intermediate layer. Therefore, the weight cannot be rigidly mounted. Indeed, what Wahl et al. describes as the vibration damping mechanism is a combination of classical hysteresis and Coulomb damping.

> Coulomb, or dry-friction damping is encountered when bodies slide on dry surfaces. This type of resistance is approximately constant, providing the surfaces are uniform and that the difference between the starting and moving conditions is negligible. . . . .
>
> Hysteresis damping, which is also called solid or structural damping, is due to internal friction of the material. The deformation of a member is an accumulation of the internal displacements of the material. Such displacements are accompanied by frictional resistance, and the energy so absorbed is dissipated in the form of heat. . . .

R. Vierck, Vibration Analysis, International Textbook Company, Scranton Pa, 1967. (emphasis added). Based on the foregoing, the Examiner's conclusion that Wahl et al. "merely implies that the core is separated from the body by the intermediate layer," cannot stand; neither can his interpretation that "the figures cited in the instant and previous office action show that the weights are incapable of moving" be allowed to stand.

Since the essential purpose of the invention described by Wahl et al. is the dissipation of vibration through a combination of Coulomb and hysteresis damping, if the weighted cores of Wahl et al. were rigidly mounted to the club head (the "obvious" alteration suggested by the Examiner), the club head of Wahl et al. would be rendered unsuitable for its intended purpose. The cores of Wahl et al. could not dissipate the vibrations if they were rigidly mounted to the club head. It is well-settled that if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification and a rejection based on such a proposed combination is improper. MPEP 2143.01; In Re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Since the "obvious" modification suggested by the examiner would render the primary reference, Wahl, et al., unsatisfactory for its intended purpose, the rejection under 35 U.S.C. § 103(a) is improper and should be reversed.

Claims 2-5 depend from claim 1 and therefore are allowable over the relied-on reference for at least the same reasons as claim 1.

Claims 12 and 15 depend from claim 11 and therefore are allowable over the relied-on reference for at least the same reasons as claim 11.

7.2 Rejection of claims 7-10 and 13 under 35 U.S.C. § 103(a) considering of USPN 6,811,496 to Wahl, et al. in view of USPN 6,162,133 to Peterson:

Claims 7-10 depend from claim 1 and therefore are allowable over the relied on-references for at least the same reasons as claim 1, since Wahl et al. is still the primary reference. Claim 13 depends from claim 11 and therefore is allowable over the relied on-references for at least the same reasons as claim 11, since Wahl et al. is still the primary and would be rendered unsatisfactory for its intended purpose by the examiner's proposed modification.

7.3 Rejection of claims 6-10 and 13 under 35 U.S.C. § 103(a) considering of USPN 6,811,496 to Wahl, et al. in view of USPN 6,015,354 to Ahu et al.:

Claims 6-10 depend from claim 1 and therefore are allowable over the relied on-references for at least the same reasons as claim 1, since Wahl et al. is still the primary reference. Claim 13 depends from claim 11 and therefore is allowable over the relied on-references for at least the same reasons as claim 11, since Wahl et al. is still the primary reference and would be rendered unsatisfactory for its intended purpose by the examiner's proposed modification.

7.4 Rejection of claim 14 under 35 U.S.C. § 103(a) considering of USPN 6,811,496 to Wahl, et al. in view of USPN 6,409612 to Evans et al.:

Claim 13 depends from claim 11 and therefore is allowable over the relied on-references for at least the same reasons as claim 11, since Wahl et al. is still the primary reference and

would be rendered unsatisfactory for its intended purpose by the examiner's proposed modification.

For the foregoing reasons, applicants urge that the examiner's rejections of claims 1-16 were improper and reversal of the examiner's decision is hereby requested.

Respectfully submitted,

Dated: 15 Feb 2006

John D. Titus, Reg. No. 39,047
THE CAVANAGH LAW FIRM
1850 N. Central Avenue, Ste. 2400
Phoenix, Arizona 85004
Telephone: (602) 322-4074
Facsimile: (602) 322-4101

CLAIMS APPENDIX

1. A method of manufacturing a golf club head, comprising:

forming a club head body comprising a hollow body having a face adapted for impacting a golf ball, said club head body further comprising a body surface having a weight cavity formed therein, the weight cavity being defined by a side wall and a bottom wall;

providing a plurality of balance weights, each of said plurality of balance weights having an upper surface, a lower surface and a lateral side joining the upper surface and the lower surface;

selecting one of said plurality of balance weights;

attaching said one of said plurality of balance weights rigidly to said club head body within the weight cavity;

providing a plurality of covers, each of said covers comprising an outer surface, an inner surface and a perimeter wall;

selecting one of said plurality of covers; and

attaching said one of said plurality of covers to said club head body so that said cover substantially covers said one of said plurality of balance weights.

2. The method of claim 1, wherein:

said plurality of balance weights comprise weights of differing mass.

3. The method of claim 1, wherein:

said plurality of balance weights comprise weights of differing densities.

4. The method of claim 1, wherein:

said attaching of said one of said plurality of balance weights rigidly to said club head body within the weight cavity comprises bonding the lateral side of said one of said plurality of balance weights rigidly to the side wall of the cavity.

5. The method of claim 1, wherein:

said attaching of said one of said plurality of balance weights rigidly to said club head body within the weight cavity comprises bonding the lower surface of said one of said plurality of balance weights rigidly to the bottom wall of said weight cavity.

6. The method of claim 1, wherein:

said attaching of said one of said plurality of balance weights rigidly to said club head body within the weight cavity comprises securing said one of said plurality of balance weights to the bottom wall of said weight cavity with screw fasteners.

7. The method of claim 1, further comprising:

forming a slot in the side wall of the weight cavity; and

forming a corresponding tab on the perimeter wall of the cover, and wherein said attaching of said one of said plurality of covers to said golf club head so that said cover substantially covers said one of said plurality of balance weights comprises snapping the tab on the perimeter wall of the cover into the slot formed in the side wall of the weight cavity.

8. The method of claim 1, wherein:

each of said plurality of balance weights further comprising a cover cavity formed in the upper surface, the cover cavity comprising a floor and a reveal.

9. The method of claim 8, further comprising:

forming a slot in the reveal of the cover cavity; and

forming a corresponding tab on the perimeter wall of the cover, and wherein said attaching of said one of said plurality of covers to said golf club head so that said cover substantially covers said one of said plurality of balance weights comprises snapping the tab on the perimeter wall into the slot formed in the reveal of the cover cavity.

10. The method of claim 8, wherein:

said attaching of said one of said plurality of covers to said golf club head so that said cover substantially covers said one of said plurality of balance weights comprises bonding said cover to the cover cavity.

11. A golf club head comprising:

a club head body comprising a hollow body having a face adapted for impacting a golf ball, said club head body further comprising a body surface having a weight cavity formed therein, the weight cavity being defined by a side wall and a bottom wall;

a balance weight disposed within said weight cavity and attached rigidly to said club head body, said balance weight selected from a plurality of balance weights, each of said plurality of balance weights having an upper surface, a lower surface and a lateral side joining the upper surface and the lower surface, said plurality of balance weights comprising weights having different masses; and

a cover selected from a plurality of covers and attached to said club head body so that said selected cover substantially covers said balance weight, each of said plurality of covers having an outer surface, an inner surface and a perimeter wall.

12. The golf club head of claim 11, wherein:

said plurality of balance weights comprise weights of different densities

13. The golf club head of claim 11, wherein:

said cover includes a plurality of tabs and said balance weight further includes a plurality of corresponding slots, said tabs and slots cooperating to attach said cover to said balance weight.

14. The golf club head of claim 11, wherein:

said cover is imprinted with information including a model designation for said golf club head.

15. The golf club head of claim 11, wherein:

said club head body further comprises a crown and a sole; and

said body surface is disposed between said crown and said sole.

16. The golf club head of claim 15, wherein said weight cavity is located in a substantially rearward direction from said face.

EVIDENCE APPENDIX

Excerpt from R. Vierck, Vibration Analysis, (3 pages including cover - attached).

Vibration Analysis

ROBERT K. VIERCK

Professor of Engineering Mechanics
The Pennsylvania State University

INTERNATIONAL TEXTBOOK COMPANY
Scranton, Pennsylvania

3 Damped Free Vibrations for Single-Degree-of-Freedom Systems

3-1. INTRODUCTION

The vibrations considered in the preceding chapters were self-sustaining and would not increase, diminish, or change in character with time. That is, there was no source which would excite the system and hence increase the amplitude of the vibration, nor was there any form of resistance which would dissipate energy and reduce the oscillation in any way. A consideration of practical cases, however, would reveal that this condition is not realistic, since all vibrations gradually lose amplitude and eventually cease altogether, unless they are maintained by some external source. Since the amplitude of a free vibration slowly dies away, something must cause energy to be removed from the system. The vibration is said to be *damped*, and the means of energy removal is called a *damper*. There are three main forms of damping. These will now be identified and discussed briefly.

Viscous damping is fairly common, occurring, for example, when bodies move in or through fluids, at low velocities. The resisting force F_d produced upon the body is proportional to the first power of the velocity of the motion. Thus,

$$F_d = -c\dot{x}$$

where the *damping constant* c is the constant resistance developed per unit velocity. It has the units of pound second per inch, so that F_d has the dimension of pounds. The negative sign is used, since the damping force opposes the direction of motion. This mathematical model of damping is a good approximation in cases where bodies slide on lubricated surfaces, when bodies move in air, oil, or other fluids, and for simple shock absorbers and hydraulic dashpots, providing the speed is not too great. At high speeds, such resistance may be proportional to the square or a higher power of the velocity.

Coulomb or dry-friction damping is encountered when bodies slide on dry surfaces. This type of resistance is approximately constant, providing the surfaces are uniform and that the difference between the starting and moving conditions is negligible. The resisting force depends on the kind of materials and the nature of the sliding surfaces, and also upon the

force normal to the surface. This is expressed as

$$F_d = \mu N$$

where μ is the coefficient of kinetic friction for the materials, and N is the normal force. The value of μ is determined experimentally. In the final stages of motion, this form of damping tends to predominate, since it is constant and the other types become negligible for small velocity and displacement.

Hysteresis damping, which is also called solid or structural damping, is due to internal friction of the material. The deformation of a member is an accumulation of the internal displacements of the material. Such displacements are accompanied by frictional resistance, and the energy so absorbed is dissipated in the form of heat. This type of resistance is approximately proportional to the displacement amplitude and is independent of the frequency.

3-2. FREE VIBRATIONS WITH VISCOUS DAMPING; ANALYSIS AND SOLUTION

Consider the system shown in Fig. 3-1a, which includes a viscous damping element represented symbolically by the dashpot shown, in addition to the mass and elastic elements. Since the displacement x referred to the equilibrium level is taken positive downward, for con-

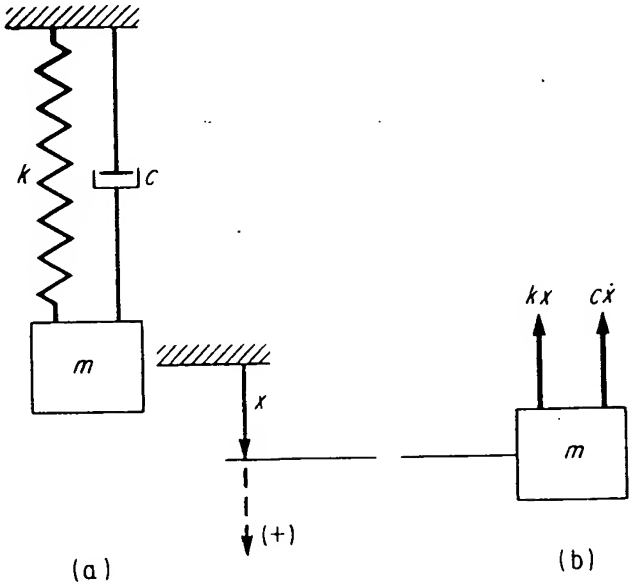

FIG. 3-1

venience, the time derivatives $\dot{x}$ and $\ddot{x}$ are also positive in that sense. Then, for a positive velocity $\dot{x}$, the damping force $c\dot{x}$ will be in the indicated upward direction in the dynamic free-body diagram shown in Fig. 3-1b. It should be noted that this force will be automatically and properly reversed when $\dot{x}$ becomes negative. Newton's relation yields

RELATED PROCEEDINGS APPENDIX

(NONE)